FCC TEST REPORT

Test report
On Behalf of

Enping Bullet Trading Co., LTD

For
Wireless Microphone System

Model No.: RU-S16, THX-01, THX-00, RU-D230, RU-F26, THX-02, THX-04, THX-E0

FCC ID: 2BAVB-RUS16

Prepared For :	**Enping Bullet Trading Co., LTD** **5 / F, Scientific Research Building, No. 10, Dongan Industrial Zone, Dongcheng Town, Enping City, Jiangmen City, Guangdong Province, China**
Prepared By :	**Shenzhen HUAK Testing Technology Co., Ltd.** **1-2/F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park, Heping, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China**

Date of Test:	**Mar. 21, 2023 ~ Apr. 07, 2023**
Date of Report:	**Apr. 07, 2023**
Report Number:	**HK2303210962-E**

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TEST RESULT CERTIFICATION

Applicant's name ..... :	Enping Bullet Trading Co., LTD
Address..... :	5 / F, Scientific Research Building, No. 10, Dongan Industrial Zone, Dongcheng Town, Enping City, Jiangmen City, Guangdong Province, China
Manufacture's Name..... :	Enping Bullet Trading Co., LTD
Address..... :	5 / F, Scientific Research Building, No. 10, Dongan Industrial Zone, Dongcheng Town, Enping City, Jiangmen City, Guangdong Province, China

Product description

Trade Mark .....:	SENWOSI
Product name.....:	Wireless Microphone System
Model and/or type reference :	RU-S16, THX-01, THX-00, RU-D230, RU-F26, THX-02, THX-04, THX-E0
Standards ..... :	FCC Rules and Regulations Part 15 Subpart C Section 15.236 ANSI C63.4: 2014

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Date of Test .....:

Date (s) of performance of tests.....:	**Mar. 21, 2023 ~ Apr. 07, 2023**
Date of Issue.....:	**Apr. 07, 2023**
Test Result.....:	**Pass**

Testing Engineer : Gary Qian

(Gary Qian)

Technical Manager : Eden Hu

(Eden Hu)

Authorized Signatory : Jason Zhou

(Jason Zhou)

HUAK TESTING CERTIFICATION HKTC APPROVAL

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** Modified History **

Revision	Description	Issued Data	Remark
Revision 1.0	Initial Test Report Release	Apr. 07, 2023	Jason Zhou

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1 TEST SUMMARY

1.1 TEST PROCEDURES AND RESULTS

Requirement	CFR 47 Section	Result
Conducted Emission	15.207	N/A
Conducted Peak Output Power	15.236(d)(1)	PASS
Occupied Bandwidth Emission	15.236(f)(2)	PASS
Radiated Spurious Emission	15.236(g)	PASS
Frequency Stability	15.236(f)(3)	PASS
Antenna requirement	15.203	PASS

Note:

1. PASS: Test item meets the requirement.

2. Fail: Test item does not meet the requirement.

3. N/A: Test case does not apply to the test object.

4. The test result judgment is decided by the limit of test standard.

1.2 TEST FACILITY

Information of the Test Laboratory

Shenzhen HUAK Testing Technology Co., Ltd.
Add.: 1-2/F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park, Heping, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

Testing Laboratory Authorization：

A2LA Accreditation Code is 4781.01.
FCC Designation Number is CN1229.
Canada IC CAB identifier is CN0045.
CNAS Registration Number is L9589.

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1.3 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement y ± U, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 %.

No.	Item	MU
1	Conducted Emission	±2.71dB
2	RF power, conducted	±0.37dB
3	Spurious emissions, conducted	±0.11dB
4	All emissions, radiated(<1G)	±3.90dB
5	All emissions, radiated(>1G)	±4.28dB
6	Temperature	±0.1°C
7	Humidity	±1.0%

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2 GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Equipment	Wireless Microphone System
Model Name	RU-S16
Serial Name	THX-01, THX-00, RU-D230, RU-F26, THX-02, THX-04, THX-E0
Model Difference	All model's the function, software and electric circuit are the same, only with appearance color and model named different. Test sample model: RU-S16.
Trade Mark	SENWOSI
FCC ID	2BAVB-RUS16
Hardware Version	V2.0
Software Version	V2.0
Operation frequency	CHA: 540.100MHz-564.850MHz CHB: 565.100MHz-589.850MHz
Number of Channels	100
Antenna Type	Internal Antenna
Antenna Gain	3dBi
Modulation Type	FM
Power Source	DC 3V from Battery

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2.2 CARRIER FREQUENCY OF CHANNELS

CHA

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
0	540.100	25	546.350	50	552.600	75	558.850
1	540.350	26	546.600	51	552.850	76	559.100
2	540.600	27	546.850	52	553.100	77	559.350
3	540.850	28	547.100	53	553.350	78	559.600
4	541.100	29	547.350	54	553.600	79	559.850
5	541.350	30	547.600	55	553.850	80	560.100
6	541.600	31	547.850	56	554.100	81	560.350
7	541.850	32	548.100	57	554.350	82	560.600
8	542.100	33	548.350	58	554.600	83	560.850
9	542.350	34	548.600	59	554.850	84	561.100
10	542.600	35	548.850	60	555.100	85	561.350
11	542.850	36	549.100	61	555.350	86	561.600
12	543.100	37	549.350	62	555.600	87	561.850
13	543.350	38	549.600	63	555.850	88	562.100
14	543.600	39	549.850	64	556.100	89	562.350
15	543.850	40	550.100	65	556.350	90	562.600
16	544.100	41	550.350	66	556.600	91	562.850
17	544.350	42	550.600	67	556.850	92	563.100
18	544.600	43	550.850	68	557.100	93	563.350
19	544.850	44	551.100	69	557.350	94	563.600
20	545.100	45	551.350	70	557.600	95	563.850
21	545.350	46	551.600	71	557.850	96	564.100
22	545.600	47	551.850	72	558.100	97	564.350
23	545.850	48	552.100	73	558.350	98	564.600
24	546.100	49	552.350	74	558.600	99	564.850

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CHB

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
0	565.100	25	571.350	50	577.600	75	583.850
1	565.350	26	571.600	51	577.850	76	584.100
2	565.600	27	571.850	52	578.100	77	584.350
3	565.850	28	572.100	53	578.350	78	584.600
4	566.100	29	572.350	54	578.600	79	584.850
5	566.350	30	572.600	55	578.850	80	585.100
6	566.600	31	572.850	56	579.100	81	585.350
7	566.850	32	573.100	57	579.350	82	585.600
8	567.100	33	573.350	58	579.600	83	585.850
9	567.350	34	573.600	59	579.850	84	586.100
10	567.600	35	573.850	60	580.100	85	586.350
11	567.850	36	574.100	61	580.350	86	586.600
12	568.100	37	574.350	62	580.600	87	586.850
13	568.350	38	574.600	63	580.850	88	587.100
14	568.600	39	574.850	64	581.100	89	587.350
15	568.850	40	575.100	65	581.350	90	587.600
16	569.100	41	575.350	66	581.600	91	587.850
17	569.350	42	575.600	67	581.850	92	588.100
18	569.600	43	575.850	68	582.100	93	588.350
19	569.850	44	576.100	69	582.350	94	588.600
20	570.100	45	576.350	70	582.600	95	588.850
21	570.350	46	576.600	71	582.850	96	589.100
22	570.600	47	576.850	72	583.100	97	589.350
23	570.850	48	577.100	73	583.350	98	589. 600
24	571.100	49	577.350	74	583.600	99	589.850

2.3 OPERATION OF EUT DURING TESTING

Operating Mode

The mode is used: **Transmitting mode for A**

Low Channel: CH00: 540.100MHz
Middle Channel: CH50: 552.600MHz
High Channel: CH99: 564.850MHz

The mode is used: **Transmitting mode for B**

Low Channel: CH0: 565.100MHz
Middle Channel: CH50 577.600MHz
High Channel: CH99: 589.850MHz

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2.4 DESCRIPTION OF TEST SETUP

Operation of EUT during Radiation testing:

EUT

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2.5 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Description	Model No.	Manufacturer	Remark	Certificate
/	/	/	/	/
/	/	/	/	/

Note:

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.

2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

3. For conducted measurements (Output Power, 6dB Emission Bandwidth, Power Spectral Density, Spurious Emissions), the antenna of EUT is connected to the test equipment via temporary antenna connector, the antenna connector is soldered on the antenna port of EUT, and the temporary antenna connector is listed in the Test Instruments.

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2.6 MEASUREMENT INSTRUMENTS LIST

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	L.I.S.N. Artificial Mains Network	R&S	ENV216	HKE-002	Feb. 17, 2023	1 Year
2.	Receiver	R&S	ESCI 7	HKE-010	Feb. 17, 2023	1 Year
3.	RF automatic control unit	Tonscend	JS0806-2	HKE-060	Feb. 17, 2023	1 Year
4.	Spectrum analyzer	R&S	FSP40	HKE-025	Feb. 17, 2023	1 Year
5.	Spectrum analyzer	Agilent	N9020A	HKE-048	Feb. 17, 2023	1 Year
6.	Preamplifier	Schwarzbeck	BBV 9743	HKE-006	Feb. 17, 2023	1 Year
7.	EMI Test Receiver	Rohde & Schwarz	ESR-7	HKE-010	Feb. 17, 2023	1 Year
8.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	HKE-012	Feb. 17, 2023	1 Year
9.	Loop Antenna	Schwarzbeck	FMZB 1519B	HKE-014	Feb. 17, 2023	1 Year
10.	Horn Antenna	Schewarzbeck	9120D	HKE-013	Feb. 17, 2023	1 Year
11.	Pre-amplifier	EMCI	EMC051845SE	HKE-015	Feb. 17, 2023	1 Year
12.	Pre-amplifier	Agilent	83051A	HKE-016	Feb. 17, 2023	1 Year
13.	EMI Test Software EZ-EMC	Tonscend	JS1120-B Version	HKE-083	N/A	N/A
14.	Power Sensor	Agilent	E9300A	HKE-086	Feb. 17, 2023	1 Year
15.	Spectrum analyzer	Agilent	N9020A	HKE-048	Feb. 17, 2023	1 Year
16.	Signal generator	Agilent	N5182A	HKE-029	Feb. 17, 2023	1 Year
17.	Signal Generator	Agilent	83630A	HKE-028	Feb. 17, 2023	1 Year
18.	Shielded room	Shiel Hong	4*3*3	HKE-039	Dec. 09, 2021	3 Year
19.	Power Meter	R&S	NRVD	SEL0069	Feb. 17, 2023	1 Year
20.	High Gain Antenna	Schewarzbeck	LB-180400KF	HKE-054	Feb. 17, 2023	1 Year

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3 TEST RESULTS AND MEASUREMENT DATA

3.1 CONDUCTED EMISSIONS TEST

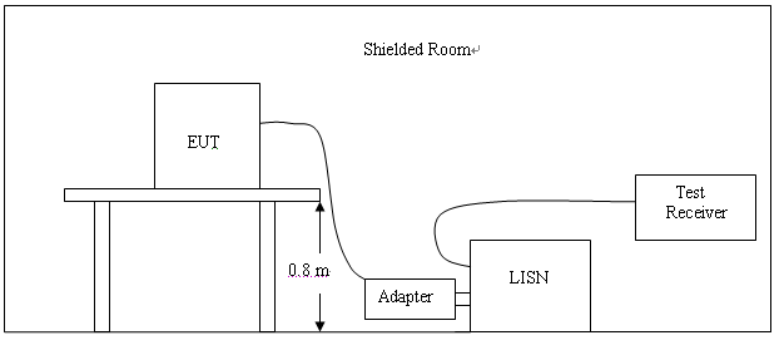
LIMIT

According to FCC CFR Title 47 Part 15 Subpart C Section 15.207 and RSS Gen 8.8, AC Power Line Conducted Emissions Limits for License-Exempt Radio Apparatus as below:

Frequency range (MHz)	Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

* Decreases with the logarithm of the frequency.

TEST CONFIGURATION



TEST PROCEDURE

1. The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. The EUT is a tabletop system; a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10:2013.
2. Support equipment, if needed, was placed as per ANSI C63.10:2013.
3. All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10:2013.
4. The adapter received AC120V/60Hz power through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.
5. All support equipments received AC power from a second LISN, if any.
6. The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
7. Analyzer / Receiver scanned from 150 KHz to 30MHz for emissions in each of the test modes.
8. During the above scans, the emissions were maximized by cable manipulation.

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TEST RESULTS

Not applicable.

Note: EUT powers supply by DC Power, so this test item not applicable.

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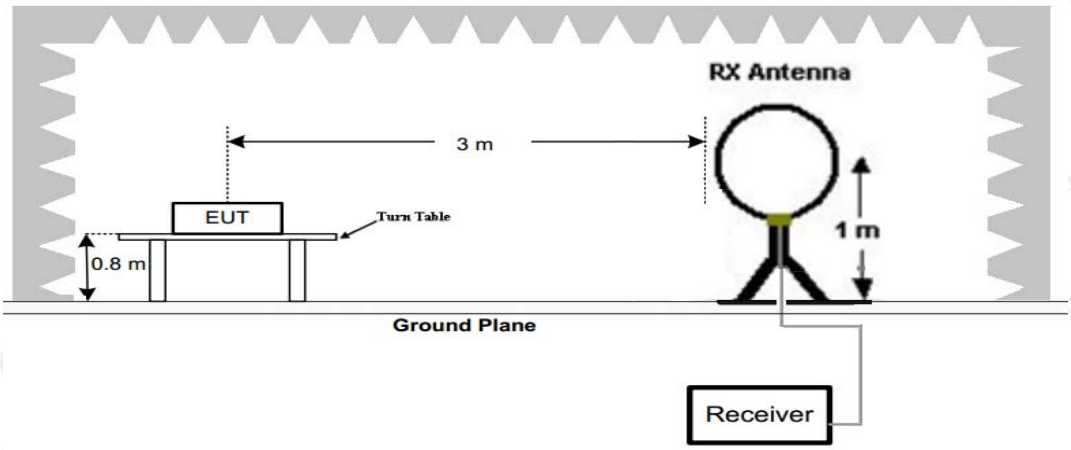
3.2 RADIATED EMISSION TEST

Limit

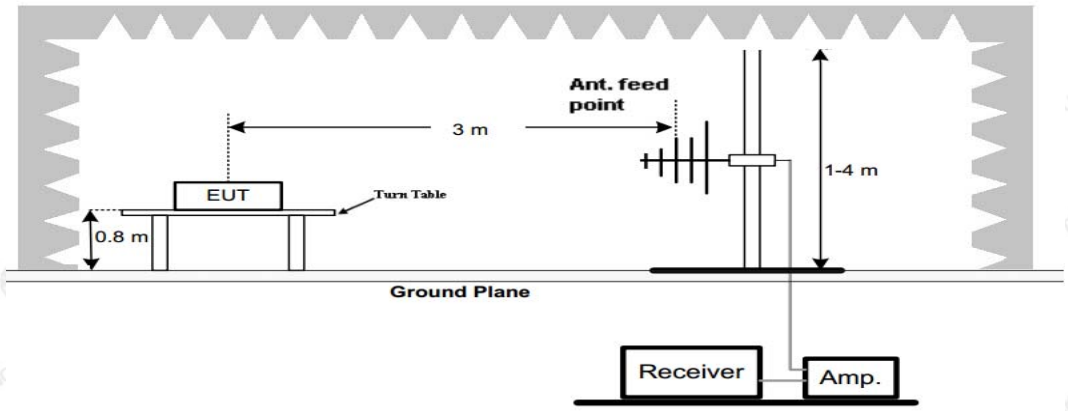
Emissions within the band from one megahertz below to one megahertz above the carrier frequency shall comply with the emission mask in §8.3 of ETSI EN 300 422-1 V1.4.2 (2011-08).
Emissions outside of this band shall comply with the limits specified in section 8.4 of ETSI EN 300 422-1 V1.4.2 (2011-08).

TEST CONFIGURATION

(A) Radiated Emission Test Set-Up, Frequency Below 30MHz.



(B) Radiated Emission Test Set-Up, Frequency below 1000MHz.



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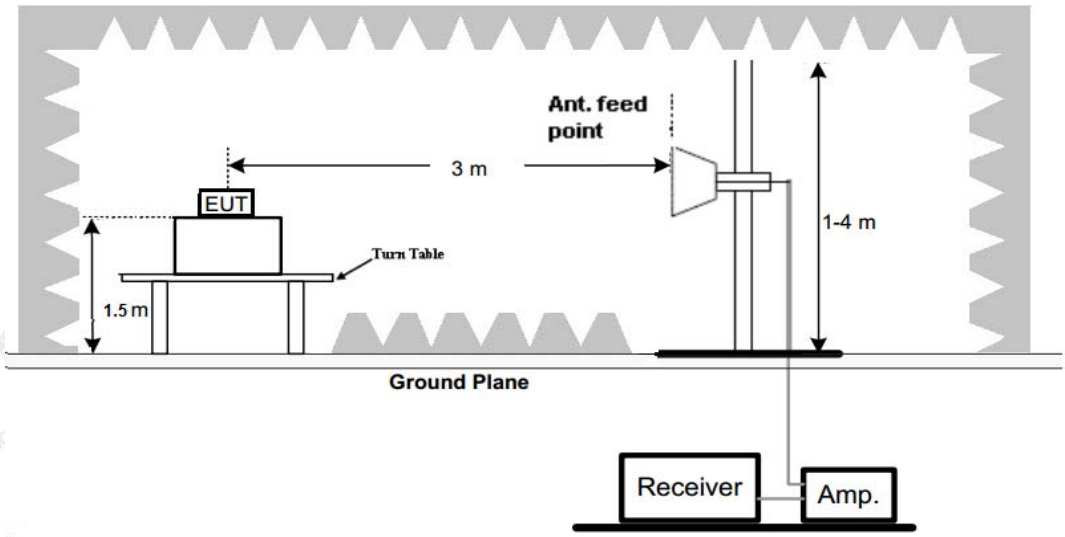
(C) Radiated Emission Test Set-Up, Frequency above 1000MHz.



Frequency: 9kHz-30MHz	Frequency: 30MHz-1GHz	Frequency: Above 1GHz
RBW=10KHz	RBW=120KHz	RBW=1MHz
VBW =30KHz	VBW=300KHz	VBW=3MHz(Peak)
Sweep time= Auto	Sweep time= Auto	Sweep time= Auto
Trace = max hold	Trace = max hold	Trace = max hold
Detector function = peak	Detector function = peak	Detector function = peak

Test Procedure

1.The setup of EUT is according with per TIA/EIA Standard 603 and ANSI C63.4-2014 measurement procedure.

2.The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna heightand polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from theEUT. The test was performed by placing the EUT on 3-orthogonal axis.

3.The frequency range up to tenth harmonic of the fundamental frequency was investigated.

4.Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable.

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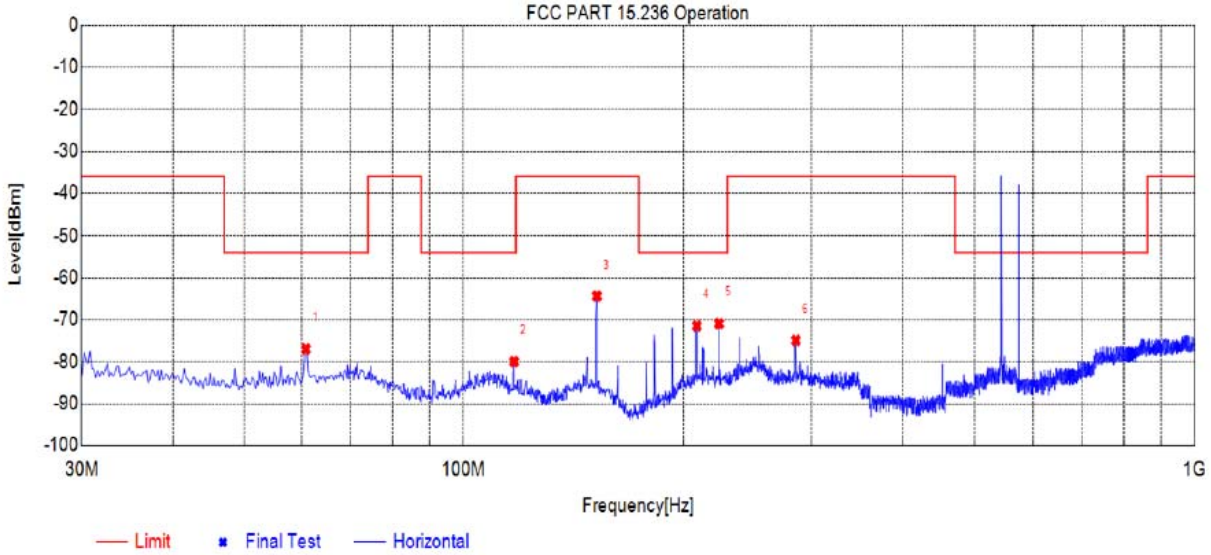
TEST RESULTS

Below 1GHz Test Results: (Show only the worst test results)

All modes have been tested, and only the worst mode is recorded.

Antenna polarity: H



Suspected List							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	60.8522	-80.76	-77.00	-54.00	23.00	3.76	Horizontal
2	117.317	-81.32	-80.02	-54.00	26.02	1.30	Horizontal
3	152.438	-65.92	-64.36	-36.00	28.36	1.56	Horizontal
4	208.903	-74.66	-71.45	-54.00	17.45	3.21	Horizontal
5	224.038	-73.83	-70.89	-54.00	16.89	2.94	Horizontal
6	285.549	-77.83	-74.93	-36.00	38.93	2.90	Horizontal

Remark: Factor = Cable loss + Antenna factor – Preamplifier; Level = Reading + Factor; Margin = Limit – Level

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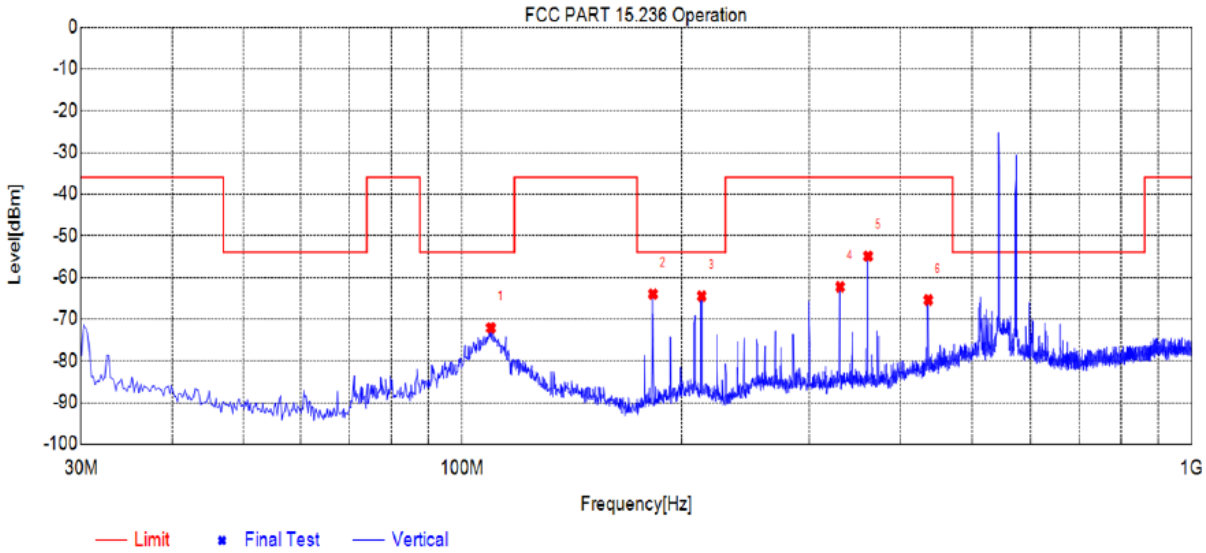
Antenna polarity: V



Suspected List							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	109.555	-84.48	-72.13	-54.00	18.13	12.35	Vertical
2	182.902	-60.94	-63.98	-54.00	9.98	-3.04	Vertical
3	213.366	-63.91	-64.51	-54.00	10.51	-0.60	Vertical
4	330.566	-64.02	-62.29	-36.00	26.29	1.73	Vertical
5	361.030	-56.47	-54.92	-36.00	18.92	1.55	Vertical
6	435.153	-67.91	-65.46	-36.00	29.46	2.45	Vertical

Remark: Factor = Cable loss + Antenna factor – Preamplifier; Level = Reading + Factor; Margin = Limit – Level

Harmonics and Spurious Emissions

Frequency Range (9 kHz-30MHz)

Frequency (MHz)	Level@3m (dBμV/m)	Limit@3m (dBμV/m)
--	--	--
--	--	--
--	--	--
--	--	--

Note: *1. Emission Level=Reading+ Cable loss+ Antenna factor-Amp factor.*

2. The emission levels are 20 dB below the limit value, which are not reported. It is deemed to comply with the requirement.

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ABOVE 1GHz test results:

All modes have been tested, and only the worst mode is recorded.

Transmitting at 540.100MHz

Frequency (MHz)	Meter Reading (dBm)	Factor (dB)	Emission Level (dBm)	Limits (dBm)	Margin (dB)	Value Type
1107.60	-35.11	-5.81	-40.92	-30	-10.92	Horizontal
1107.60	-36.74	-5.81	-42.55	-30	-12.55	Vertical
1661.40	-36.08	-6.06	-42.14	-30	-12.14	Vertical
1661.40	-35.58	-5.81	-41.39	-30	-11.39	Horizontal
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Transmitting at 552.600MHz

Frequency (MHz)	Meter Reading (dBm)	Factor (dB)	Emission Level (dBm)	Limits (dBm)	Margin (dB)	Value Type
1121.60	-37.16	-5.81	-42.97	-30	-12.97	Horizontal
1121.60	-36.44	-5.81	-42.25	-30	-12.25	Vertical
1682.40	-35.22	-6.06	-41.28	-30	-11.28	Vertical
1682.40	-37.99	-5.81	-43.8	-30	-13.8	Horizontal
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

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Transmitting at 564.850MHz

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	
1135.60	-38.79	-5.81	-44.6	-30	-14.6	Horizontal
1135.60	-35.62	-5.81	-41.43	-30	-11.43	Vertical
1703.40	-35.11	-6.06	-41.17	-30	-11.17	Vertical
1703.40	-35.67	-5.81	-41.48	-30	-11.48	Horizontal
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Remark：
(1) Measuring frequencies from 1 GHz to the 18 GHz.
(2) “F” denotes fundamental frequency; “H” denotes spurious frequency; “E” denotes band edge frequency.
(3) * denotes emission frequency which appearing within the Restricted Bands specified in provision of 15.205, then the general radiated emission limits in 15.209 apply.
(4)The emissions are attenuated more than 20dB below the permissible limits are not record in the report.
(5) The IF bandwidth of EMI Test Receiver between 30MHz to 1GHz was 120KHz, 1 MHz for measuring above 1 GHz, below 30MHz was 10KHz. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for peak measurement with peak detector at frequency above 1GHz. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average measurement with peak detection at frequency above 1GHz.
(6) When the test results of Peak Detected below the limits of Average Detected, the Average Detected is not need completed. For example: Top Channel at Fundamental 73.16dBuV/m(PK Value) <93.98(AV Limit), at harmonic 53.20 dBuV/m(PK Value) <54 dBuV/m(AV Limit), the Average Detected not need to completed.

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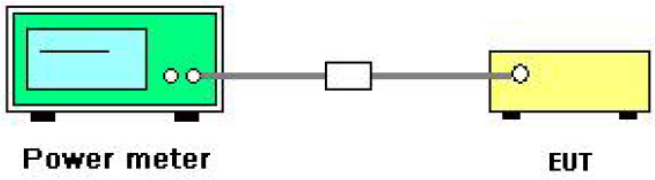
3.3 CONDUCTED OUTPUT POWER

Limit

According to FCC 15.236(d)(1), for low power auxiliary station operating in the 470-608, and 614-698 MHz bands, In the bands allocated and assigned for broadcast television and in the 600 MHz service band: 50 mW EIRP

TEST CONFIGURATION



Test Procedure:

Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the power sensor.

Test Results:

A mode：

Test Channel	frequency (MHz)	Conducted Output Power (dBm)	ANT Gain (dBi)	EIRP (dBm)	Limit (dBm)	Result
CH00	540.100	-12.36	3	-9.36	17	PASS
CH50	552.600	-10.95	3	-7.95		PASS
CH99	564.850	-12.01	3	-9.01		PASS

B mode：

Test Channel	frequency (MHz)	Conducted Output Power (dBm)	ANT Gain (dBi)	EIRP (dBm)	Limit (dBm)	Result
CH00	565.100	-12.62	3	-9.62	17	PASS
CH50	577.600	-11.46	3	-8.46		PASS
CH99	589.850	-9.68	3	-6.68		PASS

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3.4 OCCUPIED BANDWIDTH MEASUREMENT

Limit

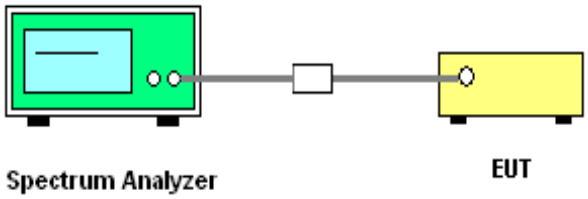
According to FCC 15.236(f)(2), The operating frequency within a permissible band of operation as defined in paragraph (c) must comply with the following requirements.

(1) The frequency selection shall be offset from the upper or lower band limits by 25 kHz or an integral multiple thereof.

(2) One or more adjacent 25 kHz segments within the assignable frequencies may be combined to form a channel whose maximum bandwidth shall not exceed 200 kHz. The operating bandwidth shall not exceed 200kHz.

Emissions within the band from one megahertz below to one megahertz above the carrier frequency shall comply with the emission mask in Section 8.3 of ETSI EN 300 422-1 V1.4.2 (2011-08) (incorporated by reference, see §15.38). Emissions outside this band shall comply with the limit specified at the edges of the ETSI mask.

TEST CONFIGURATION



Test Procedure:

According to TIA-603 for additional Test Set-Up procedures, the occupied bandwidth of emission was measured with a Spectrum Analyzer connected to the antenna terminal while EUT was operating in 2.5kHz tone at an input level 16 dB greater than that necessary to produce 50 percent modulation. Then mark the -26dB Bandwidth and record it.

Test Results:

A mode:

Test Channel	frequency (MHz)	-20Bandwidth (kHz)	99%Bandwidth (kHz)	Limit (kHz)	Result
CH00	540.100	69.06	63.420	200	PASS
CH50	552.600	63.27	62.005		PASS
CH99	564.850	62.45	61.445		PASS

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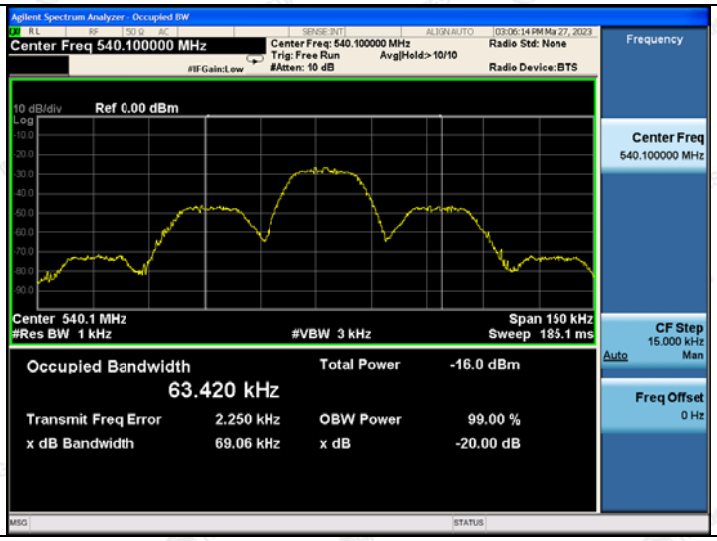
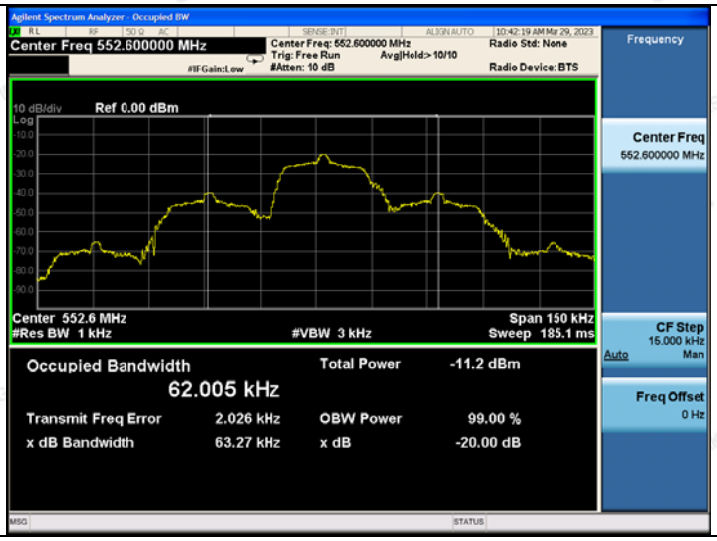
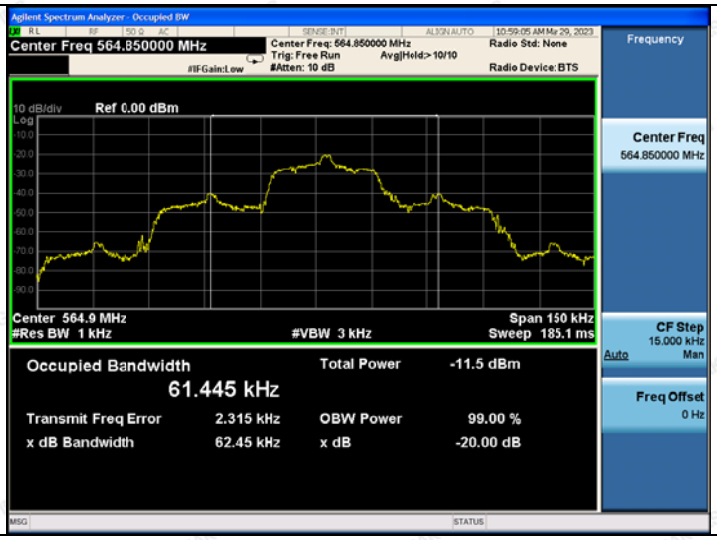
540.100MHz



552.600MHz



564.850MHz



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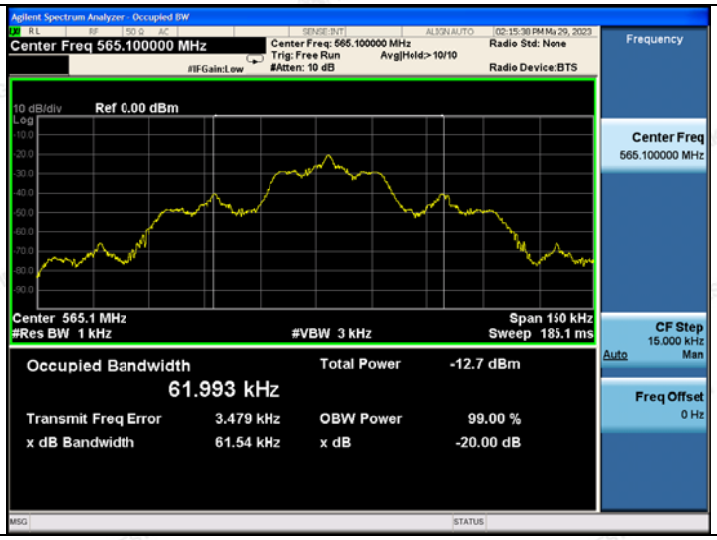
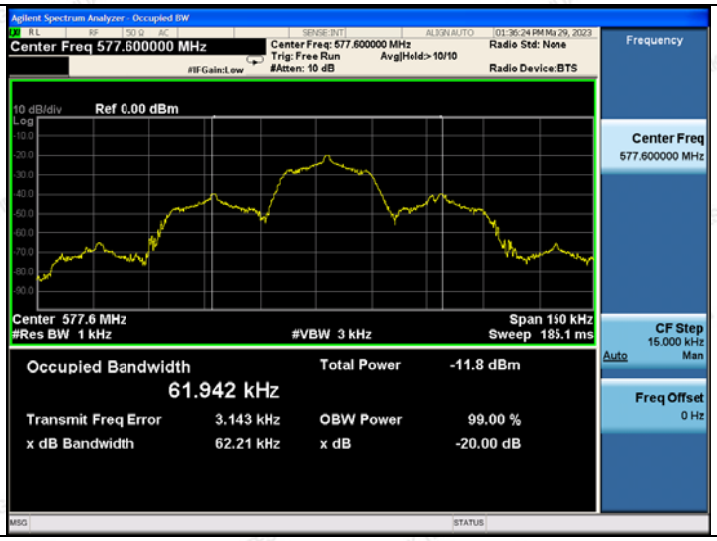
B mode：

Test Channel	frequency (MHz)	-20Bandwidth (kHz)	99%Bandwidth (kHz)	Limit (kHz)	Result
CH00	565.100	61.54	61.993	200	PASS
CH50	577.600	62.21	61.942		PASS
CH99	589.850	51.65	61.401		PASS

565.100MHz



577.600MHz



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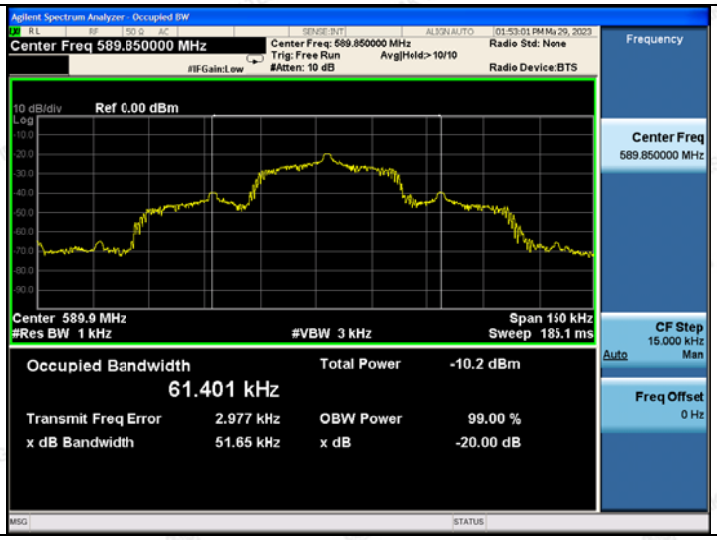
589.850MHz



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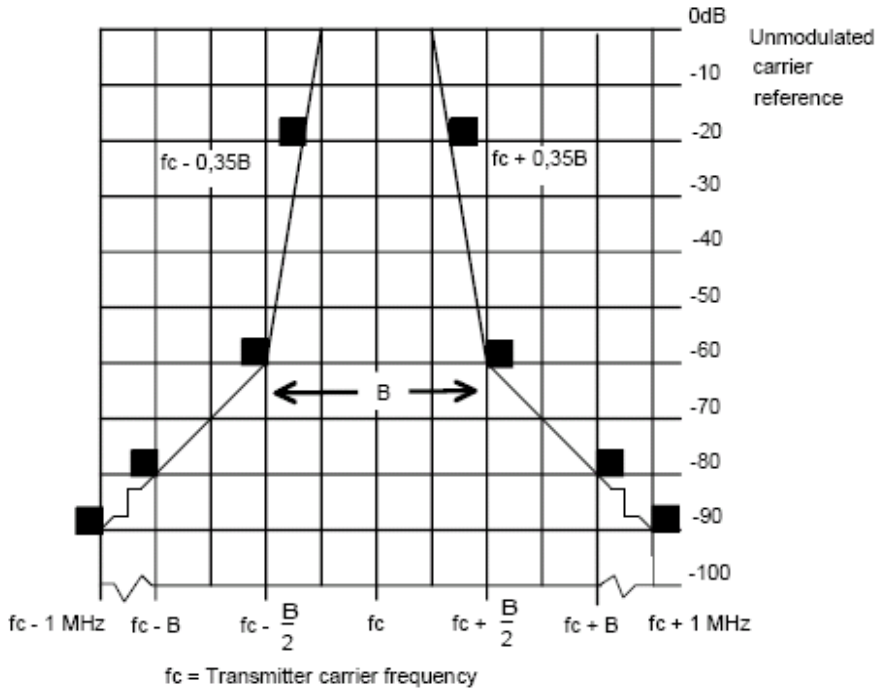
3.5. NECESSARY BANDWIDTH

Limit

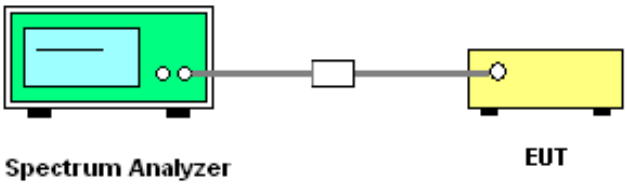


Standard Applicable

According to §15.236 (g) Emissions within the band from one megahertz below to one megahertz above the carrier frequency shall comply with the emission mask in §8.3 of ETSI EN 300 422-1 V1.4.2 (2011-08),Electromagnetic compatibility and Radio spectrum Matters (ERM); Wireless Microphone System s in the 25 MHz to 3GHz frequency range; Part 1: Technical characteristics and methods of measurement. Emissions outside of this band shall comply with the limits specified in section 8.4 of ETSI EN 300 422-1 V1.4.2 (2011-08).

According to ETSI EN 300 422-2 V2.1.1 section 8.3, the transmitter output spectrum shall be within the mask defined in the following figure.

TEST CONFIGURATION



Test Procedure:

The arrangement of test equipment as shown in figure B.1 shall be used. Note that the noise meter conforms to (quasi peak) without weighting filter (flat).

With the Low Frequency (LF) audio signal generator set to 500 Hz, the audio input level to the DUT shall be adjusted to 8 dB below the limiting threshold (-8 dB (lim)) as declared by the manufacturer.

The corresponding audio output level from the demodulator shall be measured and recorded.

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The input impedance of the noise meter shall be sufficiently high to avoid more than 0.1 dB change in input level when the meter is switched between input and output.

The audio input level shall be increased by 20 dB, i.e. to +12 dB (lim), and the corresponding change in output level shall be measured.

It shall be checked that the audio output level has increased by ≤ 10 dB.

If this condition is not met, the initial audio input level shall be increased from -8 dB (lim) in 1 dB steps until the above condition is fulfilled, and the input level recorded in the test report. This level replaces the value derived from the manufacturer's declaration and is defined as -8 dB (lim).

Measure the input level at the transmitter required to give +12 dB (lim).

The LF generator shall be replaced with the weighted noise source to Recommendation ITU-R BS.559-2 [i.3], band-limited to 15 kHz as described in IEC 60244-13 [2], and the level shall be adjusted such that the measured input to the transmitter corresponds to +12 dB (lim).

If the transmitter incorporates any ancillary coding or signalling channels (e.g. pilot-tones), these shall be enabled prior to any spectral measurements.

If the transmitter incorporates more than one audio input, e.g. stereo systems, the second and subsequent channels shall be simultaneously driven from the same noise source, attenuated to a level of -6 dB (lim).

- centre frequency: fc: Transmitter (Tx) nominal frequency;
- dispersion (Span): fc - 1 MHz to fc + 1 MHz;
- Resolution BandWidth (RBW):1 kHz;
- Video BandWidth (VBW): 2 kHz;
- detector: Peak hold.

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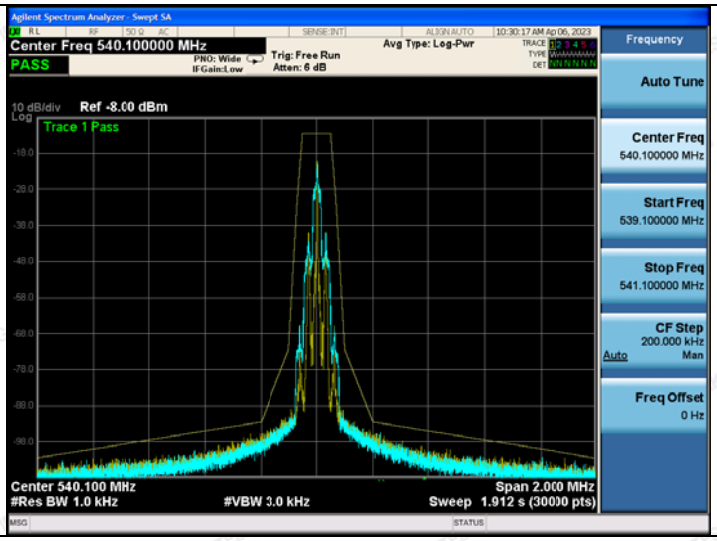
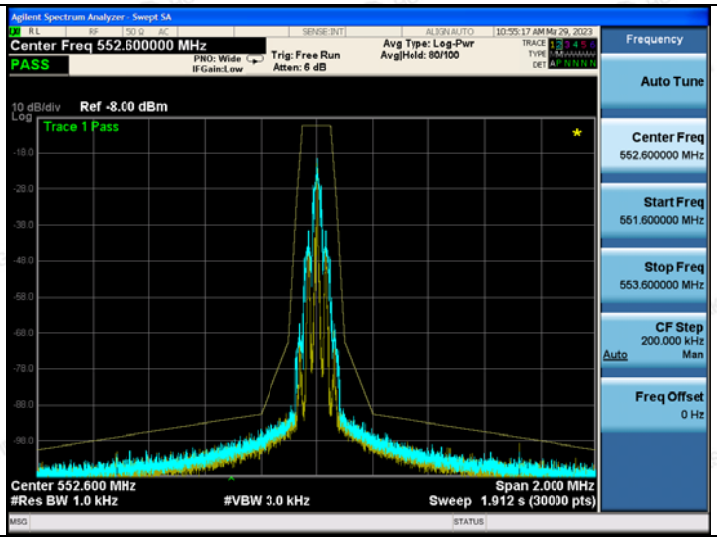
Test Result

CHA:

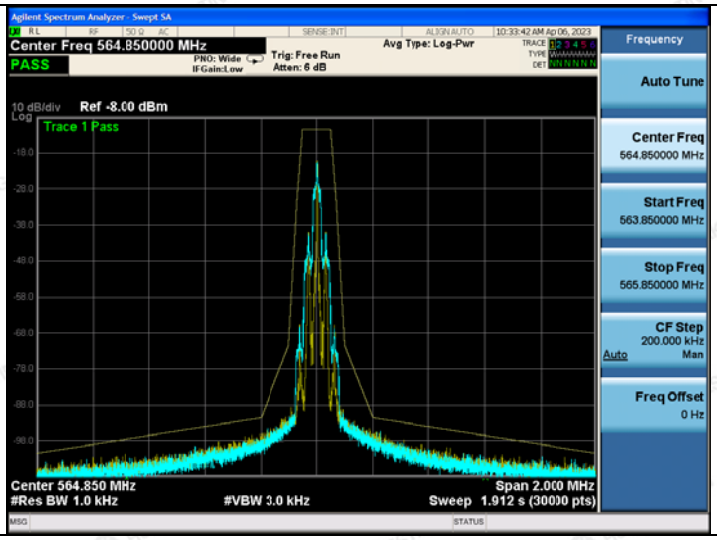
540.100MHz



552.600MHz



564.850MHz



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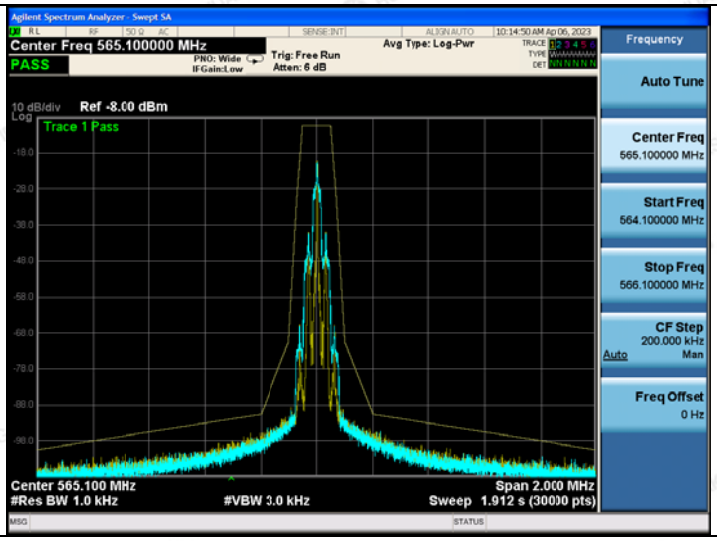
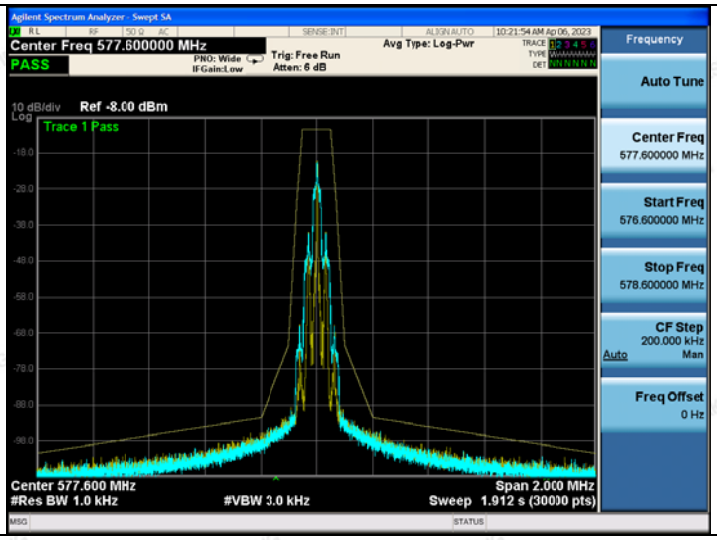
CHB:

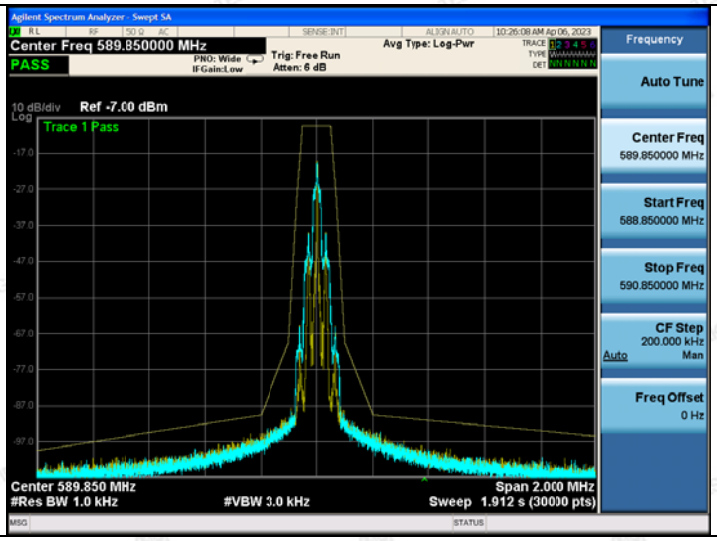
565.100MHz



577.600MHz



589.850MHz



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3.6. FREQUENCY STABILITY

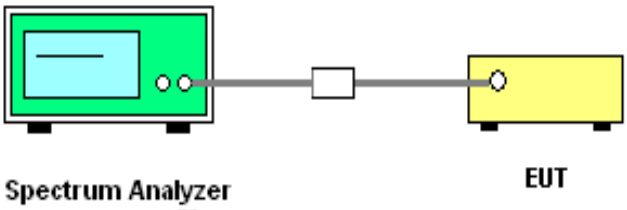
Limit

±50ppm

Standard Applicable

According to FCC 15.236(f)(3), The frequency tolerance of the carrier signal shall be maintained within ±0.005%of the operating frequency over a temperature variation of −20 degrees to +50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. Battery operated equipment shall be tested using a new battery.

TEST CONFIGURATION



Test Procedure:

1. Setup the configuration of the ambient temperature form -20ºC to 50ºC with sufficient time. And measure the different power of the EUT with an artificial power from highest to end point voltage.
2. Set frequency counter center frequency to the right frequency needs to be measured band.

Test Result

Note: All modes have been tested, and only the worst mode is recorded.

Test frequency	Test Conditions		Measure Frequency	Frequency Error		Limit	Result
(MHz)	Voltage (V)	Temperature (ºC)	(MHz)	(MHz)	ppm	ppm	
540.100MHz	N	N	540.090	-0.0096	-17.77	±50ppm	PASS
		L	540.092	-0.0083	-15.37		
		H	540.099	-0.0006	-1.11		
	L	N	540.091	-0.0089	-16.48		
		L	540.094	-0.0061	-11.29		
		H	540.092	-0.0082	-15.18		
	H	N	540.099	-0.0010	-1.85		
		L	540.098	-0.0020	-3.70		
		H	540.096	-0.0036	-6.67		

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Test frequency	Test Conditions		Measure Frequency	Frequency Error		Limit	Result
(MHz)	Voltage (V)	Temperature (ºC)	(MHz)	(MHz)	ppm	ppm	
552.600MHz	N	N	552.593	-0.0069	-12.49	±50ppm	PASS
		L	552.598	-0.0020	-3.62		
		H	552.596	-0.0037	-6.70		
	L	N	552.594	-0.0059	-10.68		
		L	552.598	-0.0025	-4.52		
		H	552.595	-0.0055	-9.95		
	H	N	552.593	-0.0070	-12.67		
		L	552.593	-0.0071	-12.85		
		H	552.594	-0.0059	-10.68		

Test frequency	Test Conditions		Measure Frequency	Frequency Error		Limit	Result
(MHz)	Voltage (V)	Temperature (ºC)	(MHz)	(MHz)	ppm	ppm	
564.850MHz	N	N	564.848	-0.0021	-3.72	±50ppm	PASS
		L	564.846	-0.0040	-7.08		
		H	564.849	-0.0014	-2.48		
	L	N	564.842	-0.0077	-13.63		
		L	564.849	-0.0008	-1.42		
		H	564.846	-0.0038	-6.73		
	H	N	564.843	-0.0068	-12.04		
		L	564.842	-0.0080	-14.16		
		H	564.848	-0.0022	-3.89		

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3.7. ANTENNA REQUIREMENT

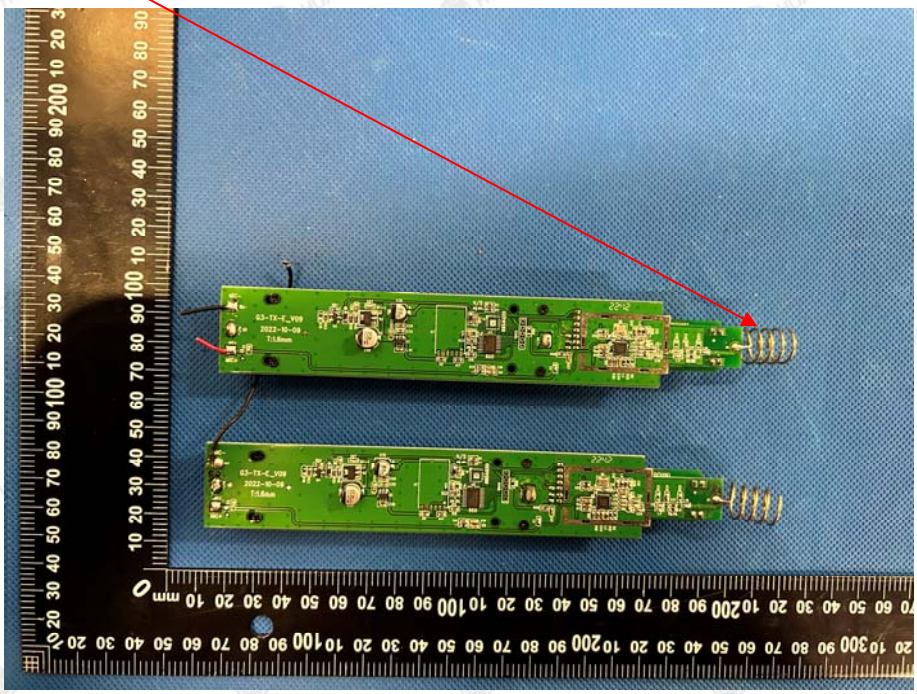
Standard Applicable

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

Antenna Connected Construction

The antenna used in this product is a Internal antenna, need professional installation, not easy to remove. It conforms to the standard requirements. The directional gains of antenna used for transmitting is 3dBi.

ANTENNA



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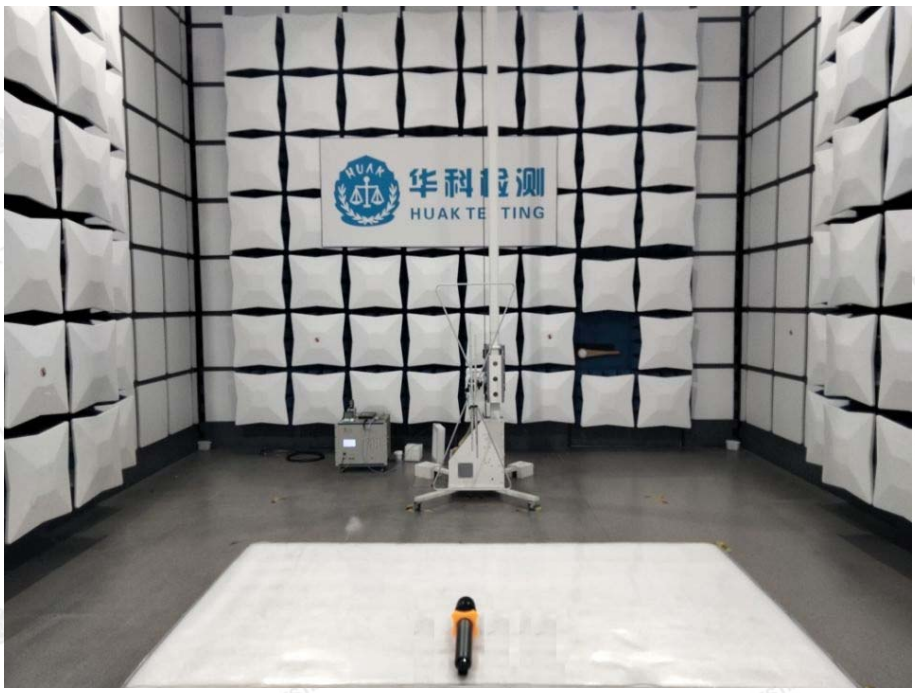
4 PHOTOGRAPH OF TEST

Radiated Emission



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5 PHOTOGRAPH OF EUT

Reference to the report: ANNEX A of external photos and ANNEX B of internal photos.

---------End of test report---------

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